

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Method for producing a workpiece, and in particular a plate, of steel which is resistant to abrasion and whose chemical composition comprises, by weight:

$$0.1\% \leq C < 0.23\%$$

$$0\% \leq Si \leq 2\%$$

$$0\% \leq Al \leq 2\%$$

$$0.5\% \leq Si + Al \leq 2\%$$

$$0\% \leq Mn \leq 2.5\%$$

$$0\% \leq Ni \leq 5\%$$

$$0\% \leq Cr \leq 5\%$$

$$0\% \leq Mo \leq 1\%$$

$$0\% \leq W \leq 2\%$$

$$0.05\% \leq Mo + W/2 \leq 1\%$$

$$0\% \leq B \leq 0.02\%$$

$$0\% \leq Ti \leq 0.67\%$$

$$0\% \leq Zr \leq 1.34\%$$

$$0.05\% < Ti + Zr/2 \leq 0.67\%$$

$$0\% \leq S \leq 0.15\%$$

$$N < 0.03\%$$

- optionally from 0% to 1.5% of copper,

- optionally at least one element selected from Nb, Ta and V at contents such that $Nb/2 + Ta/4 + V \leq 0.5\%$,

- optionally at least one element selected from Se, Te, Ca, Bi and Pb at contents which are less than or equal to 0.1%,

the balance being iron and impurities resulting from the production operation, the chemical composition further complying with the following relationships:

$$C^* = C - Ti/4 - Zr/8 + 7xN/8 \geq 0.095\%$$

and:

$$Ti + Zr/2 - 7xN/2 \geq 0.05\%$$

and:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K > 1.8$$

with: $K = 1$ if $B \geq 0.0005\%$ and $K = 0$ if $B < 0.0005\%$,

according to which the plate is subjected to a thermal quenching processing operation which is carried out in the heat for forming in the hot state ~~and, for example rolling heat~~, or after austenitization by means of reheating in a furnace, in order to carry out the quenching:

- cooling the workpiece or plate ~~is cooled~~ at a mean cooling rate greater than 0.5°C/s between a temperature greater than AC_3 and a temperature of from approximately $T = 800 - 270xC^* - 90xMn - 37xNi - 70XCr - 83x(Mo + W/2)$ to $T - 50^\circ\text{C}$,

- then cooling the workpiece or plate ~~is then cooled~~ at a mean core cooling rate $V_r < 1150xep^{-1.7}$ greater than 0.1°C/s between the temperature T and 100°C , ep being the thickness of the plate expressed in mm,

- cooling the workpiece or plate ~~is cooled~~ as far as ambient temperature ~~and optionally planishing is carried out~~.

2. (currently amended) Method according to claim 1, ~~further characterized in~~
~~that~~wherein:

$$1.05 \times \text{Mn} + 0.54 \times \text{Ni} + 0.50 \times \text{Cr} + 0.3 \times (\text{Mo} + \text{W}/2)^{1/2} + \text{K} > 2.$$

3. (currently amended): Method according to claim 1, ~~further characterized in~~
~~that~~wherein:

$$\text{C} \leq 0.22\%$$

and:

$$\text{C}^* \geq 0.12\%.$$

4. (currently amended) Method according to claim 1, ~~further characterized in~~
~~that~~wherein:

$$\text{Ti} + \text{Zr}/2 \geq 0.10\%.$$

5. (currently amended) Method according to claim 1, ~~further characterized in~~
~~that~~wherein:

$$\text{Si} + \text{Al} \geq 0.7\%.$$

6. (currently amended) Method according to claim 1, ~~characterized in that~~wherein
tempering at a temperature which is less than or equal to 350°C is further carried out.

7. (currently amended) Method according to claim 1, ~~characterized in that~~wherein, in
order to add titanium to the steel, the liquid steel is placed in contact with a slag containing
titanium and the titanium of the slag is caused to diffuse slowly in the liquid steel.

8-13. (canceled).

14. (new): Method according to claim 1, further comprising carrying out levelling.

15. (new): Method according to claim 1, wherein the heat for forming is rolling heat.